

**Triennial Rulemaking  
Expedited Rulemaking Issues  
December 6, 2002**

**Article 2 candidate changes that are ready to move forward**

- 1) Criteria and Methodologies
  - a) Dissolved metals
  - b) Free cyanide
  - c) Methodologies for aquatic life
  - d) General narrative criteria
  - e) Narrative criteria for whole effluent toxicity
  - f) Site specific modifications
  
- 2) Other Article 2 Candidate Changes.
  - a) Update 327 IAC 2-1.5-4(c) language
  - b) Delete Table 8-11 in 2-1.5-8(k)
  - c) Update incorporation by reference
  - g) Minor technical changes to the rule

**Article 5 candidate changes that are ready to move forward**

- 1) Basic NPDES Requirements
- 2) Implementation Procedures
- 3) Lake and Sinkhole Discharger Rule
- 4) Small Sanitary Discharger Rule

**Article 15 candidate changes that are ready to move forward**

Updates based on changes made in 1999 Triennial Review Second Notice

**Article 2 changes that need more discussion**

- 1) Criteria and Methodologies
  - a) Bioaccumulative chemicals of concern (BCCs)
  - b) Methodologies for wildlife
  - c) Aquatic life, human health and wildlife numeric criteria
  - c) Arsenic
  - d) Dissolved solids, fluoride and sulfates
  - e) Ammonia
  - f) Temperature
  - g) Averaging periods for BCCs

## Article 2 candidate changes that are ready to move forward

### 1) Criteria and Methodologies

- Dissolved metals for aquatic life criteria

In 1993, EPA released a memorandum recommending that dissolved metals be regulated in state water quality standards instead of total recoverable metals. Indiana rules currently regulate dissolved metals in the Great Lakes system. Outside of the Great Lakes system, the criteria are technically acid soluble metals, but compliance is determined using total metals since there are no acid soluble methods. IDEM staff believes that regulating dissolved metals is the most scientifically defensible approach.

IDEM Recommendation: Adopt dissolved metals statewide.

- Free cyanide aquatic life criteria

Since it has been determined that most of the toxicity attributable to cyanide is due to free cyanide (rather than cyanide which is bound to other substances), EPA has decided that free cyanide should be used to set and measure compliance with water quality standards. Indiana currently regulates free cyanide in the Great Lakes system. IDEM staff believes that regulating free cyanide rather than total cyanide is the most scientifically defensible approach.

IDEM Recommendation: Adopt free cyanide statewide.

- Methodologies for aquatic life

Methodologies for calculating aquatic life criteria and values

The aquatic life methodologies adopted for the Great Lakes system in 1997 are the best methods currently available for calculating aquatic life criteria and values. The Great Lakes Water Quality Guidance (GLWQG) provided methods to calculate Tier I criteria for substances that have sufficient toxicity data and Tier II values for substances without complete toxicity data. No new methods have been proposed by EPA since the release of the GLWQG.

IDEM Recommendation: Adopt the Great Lakes system aquatic life methodologies statewide

- General narrative criteria

Indiana has had general narrative criteria in its rules since the 1970's. Only minor modifications were made to the general narrative criteria during the Great Lakes system rulemaking. The narrative criteria used in the state conform to EPA's recommendations for protecting aquatic life, human health and wildlife.

IDEM Recommendation: The general narrative language from the Great Lakes system should be adopted statewide. The language may need tweaking but shouldn't require major revisions.

- Narrative criteria for whole effluent toxicity

Outside the Great Lakes system, the rules do not include narrative criteria for whole effluent toxicity. However, procedures for calculating numeric criteria for whole effluent toxicity are included in 327 IAC 2-1-8.2 and 2-1-8.3. These procedures are not completely consistent with IDEM's current practice for implementing whole effluent toxicity. They also reduce IDEM's flexibility in implementing whole effluent toxicity. Narrative criteria for whole effluent toxicity with a numeric interpretation were adopted for the Great Lakes system in 1997. These criteria are consistent with IDEM's current practice for implementing whole effluent toxicity outside the Great Lakes system.

IDEM Recommendation: Adopt the Great Lakes system narrative criteria for whole effluent toxicity and numeric interpretation statewide.

- Site specific modifications

The latest methodologies for calculating site specific aquatic life, human health and wildlife criteria and values were adopted into the Great Lakes system rules in 1997. The site specific methodologies adopted in 1997 are well established and the best methods currently available.

IDEM Recommendation: Adopt the site specific methodologies in the Great Lakes system rules statewide.

## 2) Other Article 2 Candidate Changes

- Update 327 IAC 2-1.5-4(c) language

Delete the reference to an expiration date for 327 IAC 5-2-11.7 which has passed (July 1, 2000). The amended version of 5-2-11.7 has no expiration date.

- Delete Table 8-11 in 2-1.5-8(k)

Table 8-11 was included in the rules for the Great Lakes system as a reference. Since the Great Lakes Guidance rulemaking, IDEM staff have calculated (where possible) Tier I criteria or Tier II values for the substances listed in the table which were not included in the Great Lakes system rules.

IDEM Recommendation: Delete table 8-11.

- Update incorporation by reference

All incorporations by reference in 327 IAC 1, 2 and 5 should be updated to the most current version or edition.

- Minor technical changes to the rule

### 2-1-5

Specify the 1996 version of the USGS low-flow book instead of the 1983 version.

**2-1-6(a)(1)(D)(i)**

This rule includes the following three provisions for acute aquatic criteria (AAC): meet the FAV in the undiluted discharge, meet the AAC outside the zone of initial dilution and if applicable, meet the AAC outside the zone of discharge-induced mixing. The implementation rules in 5-2-11.1(b)(1) only include the FAV and discharge-induced mixing provisions. The zone of initial dilution requirement is actually more stringent than the FAV requirement so the FAV requirement is not necessary. It would also be appropriate to incorporate requirements related to alternate mixing zones (e.g. meeting the AAC outside the zone of discharge-induced mixing) in 5-2-11.1(b).

IDEM Recommendation: Delete the requirement that the FAV shall not be exceeded in the undiluted discharge and replace “zone of discharge-induced mixing” with “alternate acute mixing zone if a mixing zone demonstration is conducted and approved.”

**2-1-9(12)**

Delete this definition. It should be incorporated in 5-2-11.1(b).

**2-1.5-8(b)(1)(E)(i) and (ii)**

Make changes similar to those recommended above for 2-1-6(a)(1)(D)(i)

**2-1.5-8, Table 8-1**

The criteria conversion factor for cadmium should be based on hardness.

**2-1.5-8(l)**

Table 8-12 was included to prompt IDEM staff to develop criteria or values for the substances listed in 327 IAC 2-1-6 which did not have criteria or values available at the time of the rulemaking. Tier I criteria or Tier II values for the substances in table 8-12 have subsequently been calculated (where possible) and are available via the state web page.

IDEM Recommendation: Delete 2-1.5-8(l).

**Article 15 candidate changes that are ready to move forward**

The 1999 Triennial Review Second Notice included changes to Article 15 that could be reviewed and included in an expedited rulemaking. IDEM is not recommending that any new general permits be added in an expedited rulemaking.

**Article 5 candidate changes that are ready to move forward****1) Basic NPDES Requirements**

The 1999 Triennial Review Second Notice included changes to rules covering basic NPDES requirements besides the implementation procedures in 5-2-11.1 and 5-2-11.3 through 11.6. These changes could be reviewed and included in an expedited rulemaking..

## **2) Implementation Procedures**

### **5-2-11.1(b)**

The following changes should be made to this rule to bring more consistency to how wasteload allocations are calculated statewide.

- 1) Delete the requirement that the FAV will be applied to the undiluted discharge and replace it with the requirement that the acute aquatic criteria (AAC) will be applied outside the zone of initial dilution.
- 2) Replace “discharge-induced mixing zone” with “alternate mixing zone” and specify the basic requirements for an alternate mixing zone for acute aquatic life criteria (e.g. high rate diffuser or functional equivalent; limited to discharge-induced mixing zone). The specific requirements of alternate mixing zone demonstrations can be included in the next rulemaking.
- 3) Make the stream design flows consistent statewide. Stream design flows should be included for whole effluent toxicity and acute aquatic life criteria.
- 4) Specify a mixing zone for chronic whole effluent toxicity.
- 5) Specify whether an alternate mixing zone demonstration is allowed for chronic whole effluent toxicity and human health criteria.
- 6) Include a provision similar to that adopted for the Great Lakes system at 327 IAC 5-2-11.4(b)(3)(A)(iii) for allowing other stream design flows on a case-by-case basis (e.g. for controlled discharges).

### **5-2-11.1(d) and (e)**

Update if aquatic life criteria are changed to dissolved metals.

### **5-2-11.1(g)(2)**

Clarify that any treatment of the intake water for the pollutant would have to be considered.

### **5-2-11.1(i)**

Change LC<sub>10</sub> to LC<sub>50</sub> and NOEL to NOEC.

### **5-2-11.4(a)(8)(C)(ii)**

This provision should be clarified to not allow a value less than one-half the LOD to be assigned to values reported as less than the LOD unless the most sensitive approved analytical method was used.

### **5-2-11.4(b)(2)(A)(i)(AA)**

Delete the requirement that the FAV shall not be exceeded in the undiluted discharge.

### **5-2-11.4(b)(2)(A)(ii)(BB)**

Specify that “1.0 TU<sub>c</sub> shall be met outside the alternate mixing zone” instead of “outside the discharge-induced mixing zone.”

### **5-2-11.4(b)(3)(A)(i)(AA)**

The phrase “when a high rate diffuser is used” should be removed because the Q<sub>1,10</sub> is used to determine the zone of initial dilution and to determine the alternate acute mixing zone.

**5-2-11.4(b)(3)(B)(i)**

Delete the requirement that the FAV shall not be exceeded in the undiluted discharge and replace it with the requirement that the CMC shall not be exceeded outside the zone of initial dilution. Replace “discharge-induced mixing zone” with “alternate mixing zone.”

**5-2-11.4(b)(3)(B)(ii)**

Replace “discharge-induced mixing zone” with “alternate mixing zone.”

**5-2-11.4(b)(4)(A)(iii)**

Specify that dischargers seeking an alternate acute mixing zone for streams must also define the location at which discharge-induced mixing ceases.

**5-2-11.4(b)(4)(C)**

Specify that an alternate acute mixing zone for a discharge to a stream will not be granted that exceeds the area where discharge-induced mixing occurs.

**5-2-11.4(c)**

The following technical corrections should be made to this rule:

- 1) Move the dissolved metal translator provisions from 5-2-11.6(c)(2) to this subsection and include the dissolved metal translator in the WLA equations.
- 2) Specify in 5-2-11.4(c)(1)(B) that  $0.3 \text{ TU}_a$  only applies if the discharger has an approved alternate mixing zone for acute whole effluent toxicity.
- 3) Delete the FAV requirement from the wasteload allocation equations.
- 4) Specify what the WLA will be if the receiving waterbody is impaired. The current wasteload allocation equations can result in negative values if the background concentration exceeds the water quality criterion.

**5-2-11.5(b)(1)(B)(i)**

Delete the requirement for at least 3 data points to calculate a monthly average.

**5-2-11.5(b)(1)(B)(ii)**

Remove this provision if the recommended change is made to 5-2-11.5(b)(1)(B)(i).

**5-2-11.5(b)(2)(A)**

Make developing PEQs discretionary for a new Great Lakes discharger. Alternatively, the applicant could be the one required to develop PEQs.

**5-2-11.5(g)**

Specify that this provision is only applicable to situations where the intake and outfall points are located on the same body of water. Other changes may be necessary based on Indiana’s MOA with EPA.

**5-2-11.6(c)(2)**

Move to 5-2-11.4(c). The dissolved metals translator provision should be included in 5-2-11.4(c). Applying a dissolved metals translator to a dissolved metal wasteload allocation is inconsistent with EPA guidance. A dissolved metals translator should be applied to a dissolved metal criterion to calculate a total recoverable metal criterion. The total recoverable metal criterion is then used in the wasteload allocation equations to calculate a total recoverable metal wasteload allocation. The default translator for cadmium should be based on hardness.

**5-2-11.6(c)(3)**

Remove the requirement that the discharger has to demonstrate that an alternate CV is more representative and allow IDEM to calculate a facility-specific CV whenever representative effluent data are available.

**5-2-11.6(c)(4)**

The following technical corrections should be made to this rule:

- 1) Remove references to 5-2-11.6(c)(2).
- 2) Clarify how WQBELs for WET will be calculated. The procedure for calculating WQBELs for WET is deficient. The procedure needs to include a conversion factor between acute and chronic toxic units or specify that WQBELs for acute and chronic WET will be calculated separately.

**5-2-11.6(c)(5)**

The following technical corrections should be made to this rule:

- 1) Remove the requirement that the discharger has to demonstrate that an alternate value for n is more appropriate and allow IDEM to use a value for n based on the monitoring frequency in the draft permit.
- 2) Specify that monthly average WQBELs may not exceed the WLA unless calculated using a facility-specific CV and a value for n based on permit conditions. Using the default values for CV and n, the current procedure would allow a monthly average WQBEL to exceed the wasteload allocation in some cases. This should only be allowed if a facility-specific CV and a value for n based on permit conditions are used.

**5-2-11.6(g)(4)**

Clarify that concentration limits will be included with tiered mass limits. This change is in accordance with Indiana's MOA with EPA.

**5-2-11.6(h)(7)(A)(iii)**

Specify monitoring requirements in accordance with Indiana's MOA with EPA.

**3) Lake and Sinkhole Discharger Rule**

Update 5-10-4 similar to what was done in the 1999 Triennial Review Second Notice.

**4) Small Sanitary Discharger Rule**

Update 5-10-5 similar to what was done in the 1999 Triennial Review Second Notice. This includes expanding the applicability of this provision to facilities with average design flows greater than 0.05 mgd.

## **Article 2 changes that need more discussion**

### **Criteria and Methodologies**

- **Bioaccumulative chemicals of concern (BCCs)**

As part of the GLWQG, EPA proposed a new definition of a bioaccumulative chemical of concern (BCC). This definition of a BCC is currently in Indiana rules for waters inside the Great Lakes system. The new definition is based on bioaccumulation rather than bioconcentration. Bioaccumulation is believed to better reflect the uptake and accumulation of a chemical by an organism since bioaccumulation takes into consideration all routes of exposure. Bioconcentration only assumes uptake from water. IDEM believes that the Great Lakes system definition of a BCC is more scientifically defensible than the non-Great Lakes system definition.

IDEM Recommendation: Adopt the definition of a BCC (and the list of BCCs) used in the Great Lakes system rules statewide.

- **Methodologies for wildlife**

The wildlife methodologies adopted for the Great Lakes system in 1997 are the best methods currently available for calculating wildlife criteria and values. IDEM does not know of any other scientifically defensible methods currently available for calculating wildlife criteria. The methodology used for the non-Great Lakes system does not account for bioaccumulation or the amount of fish consumed by mammals and birds. The method will not produce criteria lower than the human health methodology used for the non-Great Lakes system and therefore has not been utilized. During the last triennial review workgroup, a modified version of the Great Lakes system methodology was presented to the workgroup which could be used for the non-Great Lakes system.

IDEM Recommendation: Adopt the modified Great Lakes system wildlife methodology for the non-Great Lakes system.

- **Aquatic life, human health and wildlife numeric criteria**

New mussel data from EPA calls into question criteria for zinc, copper, and nickel. However, the EPA data are considered preliminary. More testing is supposed to be initiated to confirm the previous testing results. The US Fish and Wildlife Service may object to these criteria if we adopt them without including mussel data on the grounds that threatened and endangered mussel species will be put at risk. Some criteria (e.g. arsenic, selenium, and silver) will probably need to be discussed in detail.

IDEM Recommendation: Discuss criteria issues with the workgroup. Updated studies may be available from EPA before the end of the triennial review.

- **Arsenic**

The human health arsenic cancer criteria listed in 327 IAC 2-1-6 result in permit limits that are below the background levels of arsenic in state waters. It has therefore been difficult to implement these criteria. EPA has proposed a new drinking water arsenic criterion but no



new surface water criteria have been proposed. Tier II noncancer criteria have been developed for the Great Lakes system however no cancer criteria have been calculated.

IDEM Recommendation: Scientifically defensible arsenic human health cancer criteria need to be developed for the state.

- Dissolved solids, fluoride and sulfates

Table 1 of 327 IAC 2-1-6 has legacy dissolved solids, fluoride and sulfates criteria adopted during a previous rulemaking. Tier II fluoride values have been calculated for the Great Lakes system. However, the total dissolved solids, fluoride and sulfates criteria from Table 1 were only applied to the open waters of Lake Michigan (327 IAC 2-1.5-8(j)(1)).

IDEM Recommendation: The work group needs to decide how to regulate total dissolved solids, fluoride and sulfates.

- Ammonia

1999 Ammonia Criteria

New mussel data from EPA appears to indicate that the 1999 criteria will be underprotective for a variety of mussel species. EPA data are preliminary however. US Fish and Wildlife Service will probably object to these criteria on the grounds that endangered mussels will be put at risk. EPA is planning on more toxicity testing in order to confirm that mussels are sensitive to ammonia. Indiana has mussels in many of its streams including one globally endangered species.

IDEM Recommendation: Wait for updated studies from EPA/USGS in order to recalculate ammonia criteria using mussel data.

- Temperature

Except for Lake Michigan, the temperature criteria for the Great Lakes system and the non-Great Lakes system do not specify where to measure compliance with the criteria. In comments submitted by the Indiana Water Quality Coalition and Indiana Manufacturers Association, suggested rule language was given that specifies where to measure compliance with temperature criteria. The suggested rule language is similar to a provision that was included in the 1999 Triennial Review Second Notice.

- Averaging periods for BCCs

In comments submitted by Tom Neltner, a recommendation was made to modify the regulations to allow for quarterly instead of monthly average limits for mercury. Tom noted that BCCs represent long term hazards and in the case of mercury, IDEM is setting monthly average limits that are the source of some of the need for variances. Required monitoring for mercury is typically no more than two samples per month which results in using a small number of samples to calculate a monthly average. Averaging samples collected over a quarter may make it easier for some dischargers to comply with mercury limits.